PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q91047
Yoshinori IGUCHI, et al.	
Appln. No.: 10/802,837	Group Art Unit: 1791
Confirmation No.: 4257	Examiner: Jason L. LAZORCIK
Filed: March 18, 2004	

For: METHOD OF MANUFACTURING GLASS ARTICLES, METHOD OF MANUFACTURING GLASS GOBS, AND METHOD OF MANUFACTURING OPTICAL ELEMENTS

REPLACEMENT APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

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I. REAL PARTY IN INTEREST

Based on the information supplied by the Appellants, and to the best of Appellants' legal representatives' knowledge, the real party in interest is the assignee, HOYA CORPORATION.

II. RELATED APPEALS AND INTERFERENCES

Appellants, as well as Appellants' assigns and legal representatives, are unaware of any appeals or interferences which will be directly affected by, or which directly affect or have a bearing on, the Board's decision in the pending case.

III. STATUS OF CLAIMS

Claims 1-15 and 17-26 are all the claims pending in the present application. Claims 1-15 and 17-26 have been finally rejected, and are the subject of this appeal. Claim 16 was cancelled. The pending claims on appeal are set forth in the Appendix.

IV. STATUS OF AMENDMENTS

In response to an Office Action dated November 14, 2006, Appellants filed an Amendment Under 37 CFR 1.111 on May 7, 2007, which amended original claims 1-13, 15 and 17-19, cancelled claim 16 and added new claim 21; the amendment was entered. In response to a final Office Action dated July 24, 2007, a response under 37 CFR 1.111 was filed on December 26, 2007, which amended claims 1-7, 9, 11, 13-15, 17 and 20, and added new claims 22-26; the amendment was entered. In response to an Office Action dated March 18, 2008, Appellants filed a Notice of Appeal on September 16, 2008 against the rejection of claims 1-15 and 17-26.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The following is an identification of the support for the limitations of the rejected independent claims, and relevant dependent claims, with reference to the relevant pages, lines and Figures of the original specification.

Claim 1

The claimed invention covers disclosed manufacturing method 1-1 in the original specification, which concerns a method of manufacturing glass articles by continuously separating glass gobs from a glass melt flow that is continuously flowing out of a nozzle. The separated glass gobs are formed with glass forming members 3 that are intermittently or continuously moving. As described at page 14, lines 6-15, at page 17, lines 1-6 with regard to Fig. 1, at page 20, lines 1-26, a support member 2 approaches the front end of the nozzle 1 such that the front end of the glass melt flow 6 is received by the support member. Then, the support member 2 is dropped faster than the flow rate of the glass melt flow to separate a glass gob from the glass melt flow. As explained at page 17, lines 9-16, the separated glass gob 6 is then transferred to a glass forming member 3 that is either stopped or moving. As explained at page 25, line 7-page 26, line 10, the period during which the glass forming member 3 is stopped for transfer of the glass gob from the support member 2 to the glass forming member 3 is made shorter than a gob preparation period, and can even be zero.

Claim 2

The claimed invention covers disclosed manufacturing method 1-2, as explained at page 14, lines 17-27, at page 17, lines 6-9 with regard to Fig. 1, at page 20, lines 1-26 and at page 22, line 9-page 23, line 12 with regard to Fig. 4, wherein a support member 3 approaches the front end of the nozzle 1 and the front end of the glass melt flow 6 is received by the support member. While supporting the front end, a constriction is made between the nozzle side and the support side of the glass flow melt and the support member is dropped to separate a glass gob 6 from the glass melt flow and the constriction. As explained at page 17, lines 9-16, the separated glass gob 6 is then transferred to a glass forming member 3 that has either stopped removing. As explained at page 25, line 7-page 26, line 10, the period during which the glass preform member is stopped for transfer of the glass gob 6 from the support member 2 to the glass preform member 3 is made shorter than a gob preparation period.

Claim 3

The claimed invention covers disclosed manufacturing method 1-3, as explained at page 15, lines 1-11, page 17, line 17-24 and page 24, lines 10-20, the support member 2 approaches the front end of the nozzle 1 and the front end of the glass melt flow is received by the support member. While supporting the front end, a constriction is made between the nozzle side and the support side of the glass flow melt and a support is then removed from the support member 2 to separate the glass gob 6 from the glass milk flow at the constriction. The glass gob 6 is then transferred to a glass forming member that has either stopped removing. As in claims 1 and 2, supported by the description at page 25, line 7-page 26, line 10, where the glass gob 6 is transferred to a stopped glass forming member 2, the time during which the glass forming

member 2 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is shorter than the time required for preparing one glass gob from the glass melt flow with the support member 2 and moving it to the glass forming member 3.

Claim 5

The claimed invention covers disclosed manufacturing method 2-1, which concerns a method of manufacturing glass articles by continuously separating glass gobs 6 from a glass melt flow that is continuously flowing out of a nozzle 1. The separated glass gobs are formed with glass forming members that are intermittently or continuously moving. As described at page 15, lines 18-26, at page 26, lines 12-16 and page 27, lines 33-49 with regard to Figs. 1 and 2, at page 20, lines 1-26, a support member 2 that approaches the front end of the nozzle 1 such that the front end of the glass melt flow is received by the support member 2. Then, the support member 2 is dropped faster than the flow rate of the glass melt flow to separate a glass gob 6 from the glass melt flow. As explained at page 17, lines 9-16, the separated glass gob 6 is then transferred to a glass forming member 3 that is either stopped or moving. As explained at page 25, line 7-page 26, line 10, the period during which the glass forming member 3 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is made shorter than a gob preparation period, and can even be zero.

Claim 6

In accordance with a second mode of the invention, three similar manufacturing methods are utilized and in the case where the glass gob 6 is transferred to a stopped glass forming member 3, the period during which the glass forming member 3 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is made less than or equal

to 70% of a cycle, as explained at page 15, line 18-page 16, line 21. Fig. 2 shows an example of the operation of a drop cutting machine with support member for separating glass gobs from the glass melt flow, as described at page 19, line 12-page 22, line 7. Additional teachings are at page 26, lines 18-23 and page 27, lines 33-49 with regard to Figs. 1 and 2.

The claimed invention of claim 6 covers disclosed manufacturing method 2-2, which concerns a method of manufacturing glass articles by continuously separating glass gobs from a glass melt flow that is continuously flowing out of a nozzle. The separated glass gobs 6 are formed with glass forming members 3 that are intermittently or continuously moving, and the gob forming step is performed once per fixed cycle, as described at page 16, lines 1-10, at page 26, lines 18-23 and page 27, lines 33-49 with regard to Figs. 1 and 2. The gob forming steps comprises receiving a front end of the glass melt flow by a support member 2, supporting the front end to form a constriction and dropping the support member 2 to separate the glass gob. With regard to claim 6, where the glass gob is moved to a stopped glass preform forming member 3, the stopping period is less than or equal to 70% of a fixed cycle period.

Claim 7

The claimed invention covers disclosed manufacturing method 2-3, which concerns a method of manufacturing glass articles by continuously separating glass gobs 6 from a glass melt flow that is continuously flowing out of a nozzle 1. The separated glass gobs 6 are formed with glass forming members that are intermittently or continuously moving, and the gob forming step is performed once per fixed cycle, as described at page 16, lines 12-21, at page 26, line 25-page 27, lines 1-49 with regard to Figs. 1 and 2. The gob forming steps comprises receiving a front

end of the glass melt flow by a support member 2, supporting the front end to form a constriction and removing support from the support member to separate the glass gob 6. With regard to claim 7, where the glass gob 6 is transferred to a stopped glass preform forming member 3, the stopping period is less than or equal to 70% of a fixed cycle period.

Claim 14

This claim corresponds to claim 1 and comprises the manufacturing step of claim 1 with a heat softening step and a press molding step added. Thus, the support for this claim at page 14, lines 6-15, at page 17, lines 1-16 with regard to Fig. 1, at page 20, lines 1-26 and page 25, line 7-page 26, line 10, is identical to the support identified above for the corresponding claim 1.

Claim 15

This claim is generally directed to a method of manufacturing glass gobs in which glass gobs are formed from a glass melt flowing out of a nozzle. Prior to dripping from the nozzle, the glass melt flowing out is brought into contact with a support member beneath the lower end of the glass melt flowing out of the nozzle, the support member is then moved downward from beneath the lower end of the glass melt at a speed greater than the flow speed of the glass melt, causing a glass gob 6 of prescribed weight to drip onto the support member 2 from the nozzle 1. In order to form the gob 6, the support member 2 is moved downward in such a manner that contact is temporarily broken between the support member 2 and the lower end of the glass melt. Page 20, lines 1-14 and page 33, lines 6-11. Also, as explained at page 43, lines 9-16, the puling away feature results in the temporary state of no contact that solves a problem with excessive contact.

Claim 20

This claim corresponds to claim 15 and comprises the manufacturing step of claim 15 with a heat softening step and a press molding step added. Thus, the support for this claim is identical to the support identified above for the corresponding claim 15 at page 20, lines 1-14 and page 33, lines 6-11, as well as at page 43, lines 9-16.

Claim 22

The claimed invention covers disclosed manufacturing method 1-2, as explained at page 14, lines 17-27, at page 17, lines 6-9 with regard to Fig. 1, at page 20, lines 1-26 and at page 22, line 9-page 23, line 12 with regard to Fig. 4, wherein a support member 3 approaches the front end of the nozzle 1 and the front end of the glass melt flow 6 is received by the support member. While supporting the front end, a constriction is made between the nozzle side and the support side of the glass flow melt and the support member is dropped to separate a glass gob 6 from the glass melt flow and the constriction. As explained at page 17, lines 9-16, the separated glass gob 6 is then transferred to a glass forming member 3 that has either stopped removing. As explained at page 25, line 7-page 26, line 10, the period during which the glass preform member is stopped for transfer of the glass gob 6 from the support member 2 to the glass preform member 3 is made shorter than a gob preparation period. A heat softening step and a press molding step are also added, as disclosed at page 44, line 10 - page 45, line 5.

Claim 23

The claimed invention covers disclosed manufacturing method 1-3, as explained at page 15, lines 1-11, page 17, line 17-24 and page 24, lines 10-20, the support member 2 approaches the front end of the nozzle 1 and the front end of the glass melt flow is received by the support

member. While supporting the front end, a constriction is made between the nozzle side and the support side of the glass flow melt and a support is then removed from the support member 2 to separate the glass gob 6 from the glass milk flow at the constriction. The glass gob 6 is then transferred to a glass forming member that has either stopped removing. As in claims 1 and 2, supported by the description at page 25, line 7-page 26, line 10, where the glass gob 6 is transferred to a stopped glass forming member 2, the time during which the glass forming member 2 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is shorter than the time required for preparing one glass gob from the glass melt flow with the support member 2 and moving it to the glass forming member 3. A heat softening step and a press molding step are also added, as disclosed at page 44, line 10 - page 45, line 5.

Claim 24

The claimed invention covers disclosed manufacturing method 2-1, which concerns a method of manufacturing glass articles by continuously separating glass gobs 6 from a glass melt flow that is continuously flowing out of a nozzle 1. The separated glass gobs are formed with glass forming members that are intermittently or continuously moving. As described at page 15, lines 18-26, at page 26, lines 12-16 and page 27, lines 33-49 with regard to Figs. 1 and 2, at page 20, lines 1-26, a support member 2 that approaches the front end of the nozzle 1 such that the front end of the glass melt flow is received by the support member 2. Then, the support member 2 is dropped faster than the flow rate of the glass melt flow to separate a glass gob 6 from the glass melt flow. As explained at page 17, lines 9-16, the separated glass gob 6 is then transferred to a glass forming member 3 that is either stopped or moving. As explained at page 25, line 7-

page 26, line 10, the period during which the glass forming member 3 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is made shorter than a gob preparation period, and can even be zero. A heat softening step and a press molding step are also added, as disclosed at page 44, line 10 - page 45, line 5.

Claim 25

In accordance with a second mode of the invention, three similar manufacturing methods are utilized and in the case where the glass gob 6 is transferred to a stopped glass forming member 3, the period during which the glass forming member 3 is stopped for transfer of the glass gob 6 from the support member 2 to the glass forming member 3 is made less than or equal to 70% of a cycle, as explained at page 15, line 18-page 16, line 21. Fig. 2 shows an example of the operation of a drop cutting machine with support member for separating glass gobs from the glass melt flow, as described at page 19, line 12-page 22, line 7. Additional teachings are at page 26, lines 18-23 and page 27, lines 33-49 with regard to Figs. 1 and 2.

The claimed invention of claim 25 covers disclosed manufacturing method 2-2, which concerns a method of manufacturing glass articles by continuously separating glass gobs from a glass melt flow that is continuously flowing out of a nozzle. The separated glass gobs 6 are formed with glass forming members 3 that are intermittently or continuously moving, and the gob forming step is performed once per fixed cycle, as described at page 16, lines 1-10, at page 26, lines 18-23 and page 27, lines 33-49 with regard to Figs. 1 and 2. The gob forming steps comprises receiving a front end of the glass melt flow by a support member 2, supporting the front end to form a constriction and dropping the support member 2 to separate the glass gob. With regard to claim 6, where the glass gob is moved to a stopped glass preform forming

member 3, the stopping period is less than or equal to 70% of a fixed cycle period. A heat softening step and a press molding step are also added, as disclosed at page 44, line 10 - page 45, line 5.

Claim 26

The claimed invention covers disclosed manufacturing method 2-3, which concerns a method of manufacturing glass articles by continuously separating glass gobs 6 from a glass melt flow that is continuously flowing out of a nozzle 1. The separated glass gobs 6 are formed with glass forming members that are intermittently or continuously moving, and the gob forming step is performed once per fixed cycle, as described at page 16, lines 12-21, at page 26, line 25-page 27, lines 1-49 with regard to Figs. 1 and 2. The gob forming steps comprises receiving a front end of the glass melt flow by a support member 2, supporting the front end to form a constriction and removing support from the support member to separate the glass gob 6. With regard to claim 7, where the glass gob 6 is transferred to a stopped glass preform forming member 3, the stopping period is less than or equal to 70% of a fixed cycle period.. A heat softening step and a press molding step are also added, as disclosed at page 44, line 10 - page 45, line 5.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-15 and 17-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

B, Claims 1-15 and 17-26 are rejected under 35 U.S.C. 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

C. Claims 1-7, 11-15 and 17-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard (US 1,853,002) in view of Ikeuchi (US 5,738,701) and Yoshikuni (US 2003/0000252 Al).

D. Claims 8, 9, 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Howard (US 1,853,002) Ikeuchi (US 5,738,701), and Yoshikuni (US 2003/0000252 Al) as applied above and further in view of Murakami (US 2003/0131628 A1).

VII. ARGUMENT

A. Claims 1-15 and 17-26 fully comply with the written description requirements of 35 U.S.C. 112, first paragraph.

In framing the rejection, the Examiner states that "[C]laims 1-3, 5-7, 14, 15, 20 and 22-26 recites the limitation 'the glass' in the statement 'forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform.' The Examiner has been unable to trace support for more than one glass preform forming member as is encompassed in the present claim construction wherein Applicant claims 'at least one glass preform forming member.'" (emphasis in original)

First, independent claims 15 and 20, as well as dependent claims 17-19, do not contain the quoted language. In the absence of the recited basis for the rejection, this rejection should be overturned.

Second, as to claims 1-3, 5-7, 14 and 22-26, Appellants note that original independent claims 1-3 and 5-7, which form a part of the original disclosure, all were directed by language in the preamble to "[A] method of manufacturing glass articles by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle and forming the separated glass gobs with glass forming members that are intermittently or continuously moving..." A subsequent transferring step in each of the claims focused on a transfer from a support member that received a glass gob to a single one of the plural glass forming members that is a "stopped or moving glass forming member to form a glass article." The language of the original claims

clearly refer to the use of multiple glass forming members and the transfer of each of the glass gobs to a corresponding moving member for formation into a glass article.

Rejected independent claims 1-3 and 5-7 maintain the same language in the preamble and the transfer step, but specify that the glass forming members are used to form a "preform" and designate them as "glass preform forming members." This added limitation is consistent with the original focus of the invention, as stated in paragraph [0001], specifically:

> The present invention relates to a method of manufacturing with high production efficiency glass articles, such as high-quality preforms for press molding (press-molding preforms) from glass melt, and to a method of manufacturing glass elements, such as lenses, by press molding these preforms.

The detailed description of the invention throughout the original specification describes various manufacturing methods 1-1 to 2-3 that embody the invention with regard to the formation of a glass gob into a preform with a single glass forming member 3. The original specification also includes a description at page 18, paragraph 0037, of a rotatable index table 5 that contains plural glass forming members 3 for continuous or intermittent formation of glass articles, specifically, glass preforms, as illustrated in Fig. 1. As would be clear to one skilled in the art, the production of one or more glass articles per unit of time will depend on the speed of table rotation, the number of glass forming members and the flow rate of the glass melt.

On the basis of the foregoing disclosure, as well as other teachings related to manufacturing examples in the original specification, there is clear support for the present language of independent claims 1-3, 5-7, 14 and 22-26 that calls for at least one of plural glass preform forming members to be used to form a glass preform.

B. Claims 1-15 and 17-26 fully comply with the requirements of 35 U.S.C. 112, second paragraph in that all of the claims particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In framing a first basis for the rejection, the Examiner states that "[C]laims 1-3, 5-7, 14, 15, 20 and 22-26 recites the limitation 'the glass' in the statement 'forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform.' The Examiner asserts that there is insufficient antecedent basis for this limitation.

First, independent claims 15 and 20, as well as dependent claims 17-19, do not contain the quoted language. In the absence of the recited basis for the rejection, this rejection should be overturned.

Second, as to claims 1-3, 5-7, 14 and 22-26, Appellants note that the Examiner truncates the relevant phrase, which is "the glass preform." The antecedent for this phrase appears earlier in each of claims in the "transferring" step where the glass preform forming member is described as being "operative to form a glass preform for press molding."

In framing a second basis for the rejection, the Examiner states with regard to claims 1-3, 5-7, 14 and 22-26 that "the relevant claims lack a nexus between the step of transferring the separated glass gob and the step of forming the glass preform." The Examiner states that "it is not evident to the Examiner that the glass gob and glass preform are in any way related to the same piece of glass as is suggested by Appellants disclosure."

First, claims 15 and 20 do not recite a step of forming a glass preform. Thus, the stated basis for the rejection of these claims is inapplicable and the rejection should be reversed.

Second, in claims 1-3, 5-7, 14 and 22-26, the language of the claim would clearly define for one skilled in the art a sequence of steps for the same glass material, namely, a moving step that results in a separated glass gob, a transfer step that concerns transferring the separated glass gob to a preform forming member and a forming step that results in a glass preform by moving the preform forming member having the separated glass gob while cooling. Further, as read in light of the original disclosure, which the Examiner admits is clear, the claim would not be ambiguous and the desired nexus is clearly present.

C. Claims 1-7, 11-12, 15, 17-18, and 21 are rejected under 36U.S.C. 103(a) as being unpatentable over Howard (US 1,853,002) in view of Ikeuchi (US 5,738,701) and Yoshikuni(US 2003/0000252 Al).

Independent Claims 1-3 and 5-7

Claims 1-3 and 5-7 expressly and uniformly define the claimed method as being applicable to (1) the manufacture of glass preforms for press molding by (2) forming a glass gob with glass preform forming members that are intermittently or continuously moving. These express limitations to the stated manufacturing process are clearly distinguishable from, and precludes a combination of, the cited prior art references.

Claims 1-3

The key feature in all of the claims 1-3 concerns the case where the glass gob is moved to a stopped glass preform forming member. Here, the claims emphasize that the transfer period during which the glass preform forming member is stopped for transfer of a glass gob from the support member to the glass forming member is made **shorter than** a gob preparation period. The gob preparation period is defined as the time required for preparing one glass gob from the

continuous glass melt flow using the support member and transferring the glass gob to the glass forming member. This feature emphasizes that the period of stoppage is **less than** the time required to prepare one glass gob.

Ikeuchi et al

In framing the rejection, the Examiner notes with respect to claims 1-3 (as well as claims 5-7, and 15, as subsequently discussed) that Ikeuchi et al discloses a method for separating glass gobs with particular reference to Figure 4. The Examiner asserts that Ikeuchi shows moving a support member to approach the front end of the nozzle (3b) (Figures 48-4b) and receiving a glass melt flow from a nozzle (3a or 3b) onto a support (10) (figure 4c). The Examiner further asserts that Ikeuchi et al discloses that the support is either intermittently or continuously lowered (fig 4d-4f) and when the glass retention ends, the support member is lowered at high speed to cut the glass (Fig 4g). Further, the Examiner asserts that during the lowering, a constriction is formed between the support and the nozzle (fig. 4e) which yields the breakpoint during the rapid lowering stage of the support (element 6d displayed in greater detail in figure 8). Finally, the Examiner observes at page 5 of the Office Action that Ikeuchi et al states that the disclosed method provides "defectless non-abrasive glass gobs" (Column 1, lines 45-47) and that the "thus obtained glass gob, after cooling solidification may be press molded in a mold" (Column 5, lines 48-51).

Admitted Lack of Disclosure of Transfer Step or Timing

Based on the foregoing text in Ikeuchi, the Examiner states at page 5 of the Office Action that Ikeuchi's formation of a gob in a support member and its subsequently shaping in "a mold,"

"strongly implies a transferring step from a support member to a mold (e.g. "glass forming member")." The Examiner admits, however, that Ikeuchi does not explicitly provide details of the transfer step or the timing of the transfer with respect to the forming step. While the Examiner looks to Howard to remedy this deficiency, the teachings of Howard are ineffective to suggest the claimed invention, as detailed subsequently.

No Separate Support and Forming Members In Ikeuchi

As now clearly recited in claims 1-3 (as well as 5-7), support for a glass gob is provided by "a support member" and the formation of a preform is made by a "glass preform forming member". The "support member" and the "glass preform forming member" are separate parts. By contrast, Ikeuchi carries out both the supporting of a glass gob and the formation of a preform with a single supporting member.

In the Response to Arguments at page 11 of the Office Action, the Examiner asserts that there has been "a sufficient showing either of the implicit disclosure of these specific elements within the Ikeuchi or their trivially obvious nature when viewed in light of the Howard reference." As taught in the present application and as detailed subsequently on the basis of fundamental principles of U.S. Patent Law, the absence of the express limitation in the claims to separate support members and glass preform forming members is not implicit, trivial or obvious in view of the disclosure in Howard.

No Transfer Period in Ikeuchi

The Examiner admits that Ikeuchi fails to provide details with respect to timing. More fundamentally, since there is no separate supporting member and forming member, Ikeuchi

cannot teach or suggest the existence of any period during which a glass preform forming member is stopped for transfer of a glass gob from a support member to the glass preform forming member. As detailed subsequently, this limitation is not inherent, trivial or obvious.

Stopping Period The Same As Gob Transfer Period in Ikeuchi

Claims 1-3 (as well as claims 5-7) all require that "the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period." In the absence of any need for a transfer period between a support member and a glass preform forming member due to the absence of separate structures, there is no basis for concluding that a transfer period is made shorter than a gob preparation period. Even if the period for transfer of the gob and the stopping period are considered, the period during which the preform forming member is stopped for transfer of the glass gob from the support member is always equal to the gob preparation period. Again, as detailed subsequently, this limitation is not inherent, trivial or obvious.

Invention Has Improved Productivity

Appellants also submit that the present invention improves productivity by shortening of the period during which the preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member. First, this advantage cannot be achieved in Ikeuchi since there is no transfer, as claimed. Second, such shortening is not a tradeoff against the gob distorting forces which decrease product quality due to the acceleration of a glass preform forming member during movement.

Howard

The Examiner looks to Howard for a teaching of a method of "suspended charge feeding" wherein a glass stream flowing continuously from a nozzle (11) is first discharged to a "supporting member" (14, 15, 16) followed by a concerted transfer step of the entire charge of glass material to a mold (18). The Examiner refers to the embodiment in Figures 6 and 7, where the charge is inverted during the transfer process, and asserts that "this 'well known method' (Pg 1, lines 45-59) serves a materially equivalent purpose to the 'support member' disclosed in the Ikeuchi process, namely to provide a glass gob free from the defects and distortions associated with direct feeding of the molten stream into a forming member. The Howard process simply makes explicit the claimed process of transferring the glass gob from the support member (14, 15, 16) to a mold or 'forming member' (18) for subsequent shaping into a glass article."

The Examiner identifies a "significant difference" from Ikeuchi as being the use of sheers (13) to sever the charge from the flowing stream." However, a further and more significant difference is the use of separate supporting members and molds to prepare a preform. Yet another significant difference is the product being formed. Specifically, Howard teaches the use of supporting members 13-15 and a mold 18 for preparation of a final product. The mold 18 is a parison mold, where 17 is a receptacle. As is known to those skilled in the art, a parison mold is not suitable for use as a glass preform forming member. Thus, there would be no basis for one skilled in the art to even consider the combination of Howard and Ikeuchi et al.

Ikeuchi and Howard Are Not Combinable To Achieve the Invention

The Examiner points to Howard's identification of a deleterious "batting effect" or distortion, and asserts that this problem would be solved by the Ikeuchi process, supporting a combination of the glass gob forming process in Ikeuchi with the glass forming operation taught by Howard. However, the two references would not be combinable to attain the present invention for several reasons.

Different Stage of Preform Production

In Ikeuchi, the formation of a preform is carried out with a supporting member (there is no separate preform formation member). The Examiner proposes to modify Ikeuchi's method by substituting supporting members 13 to 15 and mold 18 of Howard for the supporting member of Ikeuchi to reach the present invention. In making this proposal, the Examiner assumes that a glass gob of Ikeuchi is molded with Howard's mold 18, based on the premise that the glass gob of Ikeuchi may be subjected to press molding with a mold of the type taught by Howard.

However, the article prepared with supporting members 13-15 in Howard is a preform, that later will be used for preparation of a final product. In other words, Howard's supporting member does not transfer a glass gob, but transfers a preform, to the mold 18. Mold 18 does not prepare a preform.

Thus, the preform prepared by the Ikeuchi supporting member corresponds to the product prepared with Howard's supporting members 13-15. Similarly, the product of Howard prepared with supporting members 13-15 corresponds to the preform for press molding of the present invention that is prepared after a transfer from the glass preform forming member. The step of

Howard in which the mold 18 is used is not the forming operation that results in a preform, as set forth in the amended claims of the present application, but in a final product.

Specifically, in order to clarify the output of the claimed method, the claims are amended to change "a glass article" to "a preform for press molding." This will make it clear that the mold 18 used in Howard to shape a preform into a product would not be useable in Ikeuchi et al to form a glass gob into a preform, as claimed.

Different Timing

As already noted, the Examiner admits that there is a difference in timing between the claimed invention and the prior art teachings, but asserts that process timing is simply the result of a tradeoff between product production rate and the gob distorting forces which decrease product quality. The Examiner also asserts that the shortening of stopping period is simply the optimization of a process step.

However, in the present invention, the purpose of for shortening the period during which the preform forming member is stopped for transfer of the glass gob from the support member to the preform forming member with respect to a "gob preparation period" is not based on an improvement of product production rate. It is necessary for specific technical reasons, which are understood by considering the rate of production and the goal of high quality production of preforms..

First, it should be understood that in order to improve the product production rate by shortening the time period necessary for preparing a single glass gob in the manufacturing method of the present invention, an increase of flowing rate of molten glass from a nozzle is

needed. However, the method defined by the amended claims do not specify that the time period necessary for preparing a single glass gob is shortened. For example, the time period necessary for preparing a single glass gob is defined as "gob preparation period" in amended claim 1 and as a "fixed cycle period" in amended claim 5. Neither of these claims mentions that the recited period is shortened.

Second, according to the present invention, the period during which the preform forming member is stopped for transfer of the glass gob from the support member to the preform forming member is made shorter than the "gob preparation period" in claim 1, for example. This technical feature does not affect the product production rate, but is directed to suppressing the distortion of a glass gob by a reduction of the acceleration of a preform forming member.

The Examiner asserts that process timing generally gives rise to a tradeoff between product production rate and the gob distorting forces which decrease product quality, and assumes that a shortening of the stopping period is merely an optimization of a process step. However, according to the present invention, the product production rate and the gob distorting forces are not a tradeoff but are factors that can be controlled independently. This is because a separate support member and a separate glass forming member are used to produce a preform, according to the presently claimed invention. The consideration of a control of the periods for gob preparation and the period for stopping the glass preform forming member are not made on the basis of a "determination of the optimum or workable ranges of said variable," as proposed by the Examiner.

Yoshikuni Does Not Remedy Deficiencies of Ikeuchi and Howard

Yoshikuni

The Examiner cites Yoshikuni for a teaching that "the cast glass is subject to acceleration" during transfer of a gob to a receiving or "forming" mold, and asserts that the process is "similar to that outlined by the Applicants." The Examiner points to Fig. 3 and Column 7, lines 17-35 of the reference for a disclosure that glass gobs may be supported on a gas film emitted through ports in the supporting surface. Finally, the Examiner states "more importantly, the reference indicates that equipment acceleration exerts a force upon the glass, deforming the glass" and that " the reference indicates that 'the greater the acceleration exerted on the glass... the greater the tendency of the glass to distort' (Column 1, Lines 55-67)."

Again, for reasons explained with regard to Ikeuchi and Howard, there are separate and independent considerations of throughput and distortion in a process as claimed where there is a separate supporting member and separate glass preform forming member. In short, there is no basis for a tradeoff between product production rate and the-gob distorting forces which decrease product quality, as suggested by the Examiner, and the time during which the glass forming member is stopped for transfer of the glass gob from the support member is not a result-effective variable of the gob molding process that may be empirically defined. It is directly related to the use of separate support member followed by the use of a separate glass preform forming member that results in production of a glass preform.

For the foregoing reasons, independent amended claims 1-3 are allowable over the combination of Ikeuchi, Howard and Yoshikuni.

Claims 5-7

With respect to the second mode, as defined in claims 5-7, the application teaches at paragraphs [0057] - [0066], that common features with the first mode exists and that the stopping time for transferring the glass gob is made less than or equal to 70% of the cutting time. Further, if the stopping time is made zero, that is the glass gob is introduced into a moving glass forming member, the speed at which the glass forming member moves when introducing the glass gob can be made slower than in other cases.

With regard to claims 5-7, the stopping period is less than or equal to 70% of a fixed cycle period comprising receiving a front end of the glass melt flow by a support member and dropping the support member while rapidly then the flow rate of the glass melt flow to separate the glass gob, or supporting the front end to form a constriction and dropping the support member to separate the glass gob, or forming the constriction and removing support from the support member to separate glass gob.

Ikeuchi

Admitted Lack of Disclosure of Transfer Step or Timing

As previously noted with regard to claims 1-3, the Examiner admits that Ikeuchi does not explicitly provide details of the transfer step or the timing of the transfer with respect to the forming step.

No Separate Support and Forming Members In Ikeuchi

As now clearly recited in claims 5-7, support for a glass gob is provided by "a support member" and the formation of a preform is made by a "glass preform forming member". The "support member" and the "glass preform forming member" are separate parts. By contrast, Ikeuchi carries out both the supporting of a glass gob and the formation of a preform with a single supporting member.

No Transfer Period in Ikeuchi

The Examiner admits that Ikeuchi fails to provide details with respect to timing, and as pointed out with regard to claims 1-3, there is no separate supporting member and forming member, as claimed.

Stopping Period The Same As Gob Transfer Period in Ikeuchi

Claims 5-7 all require that "the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period." In the absence of any need for a transfer period between a support member and a glass preform forming member due to the absence of separate structures, there is no basis for concluding that a transfer period is made shorter than a gob preparation period. Even if the period for transfer of the gob and the stopping period are considered, the period during which the preform forming member is stopped for transfer of the glass gob from the support member is always equal to the gob preparation period. Again, as detailed subsequently, this limitation is not inherent, trivial or obvious.

Invention Has Improved Productivity

As previously asserted with regard to claims 1-3, the present invention improves productivity by shortening of the period during which the preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member. First, this advantage cannot be achieved in Ikeuchi since there is no transfer, as claimed. Second, such shortening is not a tradeoff against the gob distorting forces which decrease product quality due to the acceleration of a glass preform forming member during movement.

Howard

As demonstrated with regard to claims 1-3, deficiencies in Ikeuchi are not remedied by the Howard process, as it simply makes explicit the claimed process of transferring the glass gob from the support member (14, 15, 16) to a mold or 'forming member' (18) for subsequent shaping into a glass article." Moreover, the significant differences between Howard's use of a parison mold 18 and a receptacle 17 would not be suitable for use in glass preform forming processes, nor would there be a basis for one skilled in the art to even consider the combination of Howard and Ikeuchi et al.

Ikeuchi and Howard Are Not Combinable To Achieve the Invention

For the reasons given for claims 1-3, the two references would not be combinable to attain the present invention.

Yoshikuni Does Not Remedy Deficiencies of Ikeuchi and Howard

Yoshikuni

For reasons explained with regard to Ikeuchi and Howard as applied to claims 1-3, there are separate and independent considerations of throughput and distortion in a process as claimed

where there is a separate supporting member and separate glass preform forming member. There simply is no basis for a tradeoff between product production rate and the-gob distorting forces which decrease product quality, as suggested by the Examiner, and the time during which the glass forming member is stopped for transfer of the glass gob from the support member is not a result-effective variable of the gob molding process that may be empirically defined. It is directly related to the use of separate support member followed by the use of a separate glass preform forming member that results in production of a glass preform.

For the foregoing reasons, independent amended claims 5-7 are allowable over the combination of Ikeuchi, Howard and Yoshikuni.

Claim 4 , 11 and 12

These claims would be patentable on the basis of their dependency on allowable parent claims for the reasons given above.

Claim 15

This claim is generally directed to a method of manufacturing glass gobs in which glass gobs are formed from a glass melt flowing out of a nozzle. Prior to dripping from the nozzle, the glass melt flowing out is brought into contact with a support member beneath the lower end of the glass melt flowing out of the nozzle, the support member is then moved downward from beneath the lower end of the glass melt at a speed greater than the flow speed of the glass melt, causing a glass gob 6 of prescribed weight to drip onto the support member 2 from the nozzle 1. In order to form the gob 6, the support member 2 is moved downward in such a manner that contact is temporarily broken between the support member 2 and the lower end of the glass melt.

In framing the rejection and in response to Appellants' previous arguments, the Examiner states that "from the time the gob is severed from the melt (fig 4g) through the reengagement of the support member to said melt (fig 4c) "contact between the support member and the lower end of the glass melt is "temporarily broken".

However, Appellants respectfully submit that a significant difference is that the support member 2 is moved downward in such a manner that contact is between the support member and the lower end of the glass melt is temporary broken prior to finally being deposited on the support member, as explained at pages 32-36 with respect to Figs. 5a-5c and at page 43, as previously noted. The movement of the support downward at a speed greater than the flow speed is described at page 33 and the advantages of the movement are described at pages 34-35.

Appellants respectfully submit that the claim expressly states the movement downward to provide a temporary break of the gob from the support member is during the step of moving the support member downward at a speed greater than the flow speed of the glass melt, causing the glass gob to drip onto the support member. The temporary release of the lower part of the go from the support member causes the gob to retract slightly, forming a glass unit that has the proper weight and size so that it can then drip onto the support member (or another mold or form) in a predictable and repeatable manner, with high quality and low stress. This clearly is different from the prior art, as explained at page 43, lines 9-16:

> Pulling the glass melt away from the support member reduces **contact** between the support member and the glass melt or results in a temporary state of no **contact** during that period. Thus, compared to when the glass melt is received

by the forming die, the period of **contact** with the glass melt is shorter and the amount of volatile matter in the glass melt adhering to the glass-receiving surface of the support member can be reduced. When such volatile matter accumulates, it is eventually incorporated into the glass, compromising the quality of the glass gobs. However, the operation of pulling away the support member solves this problem.

Further, this feature makes the limitation set forth in Claim 15 wherein "the support member is cooled by circulation of a coolant through the support member" to be significant, as it results in the glass and support being at relative temperatures so that the gob is properly released from the support without leaving residue, and at a proper timing.

Independent Claims 14 and 22-26

Claims 14 and 22-26 are directed to the formation of final glass product. A first step of "(1) manufacturing glass preforms" in each claim corresponds to the method of manufacturing glass preforms, as recited in independent claims 1-3 and 5-7, respectively. In this first step, each claim expressly and uniformly define the claimed method as being applicable to (1) the manufacture of glass preforms for press molding by (2) forming a glass gob with a glass preform forming member. These express limitations to the stated manufacturing step is clearly distinguishable from, and precludes a combination of, the cited prior art references as asserted in detail above.

Claims 14 and 22-26 add to corresponding claims 1-3 and 5-7 the steps of "(2) heat softening the glass preform" and "(3) then, press molding the softened glass preform into an optical element."

Claims 8, 9, 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Howard (US 1,853,002) Ikeuchi (US 5,738,701), and Yoshikuni (US 2003/0000252 Al) as applied above and further in view of Murakami (US 2003/0131628 A1). This rejection is traversed for at least the following reasons.

The Examiner asserts that Ikeuchi teaches method of separating individual glass gobs from a glass melt which is continuously flowing from nozzle and implicitly requires a transfer step of transferring the formed gob from the support member to a forming member. The Examiner admits that Ikeuchi does not teach the details of the transfer step nor the timing, as claimed. The Examiner looks to Howard for a teaching of the details of such transfer step, based on a "suspended charge feeding" process that is considered to be old and well known in the art. The Examiner admits that neither of Ikeuchi and Howard specifically limits the process timing. The Examiner looks to Yoshikuni for teachings that support an effort by one skilled in the art to seek a balance between maximizing a gob production rate while minimizing the distorting forces imparted to the softened glass gobs which result in decreased product quality. The Examiner admits that the details of claims 8-10 are not taught in the cited references and looks to Murakami for the missing teachings.

Murakami

The Examiner looks to Murakami for a variety of support members, especially to Figure 2 where a support member is tilted to cause the glass gob to fail off and Figures 3 and 4 where support members which are rotated 360° to transfer a glass gob and the glass gobs are received on two different surfaces of the support member. However, Murakami does not remedy the deficiencies of Ikeuchi, Howard and Yoshikuni as it does not disclose the use of separate support members and separate preform forming members for producing a glass preform with the timing as set forth in the claims.

The USPTO is directed and authorized to charge the statutory fee (37 C.F.R. §41.37(a) and 1.17(c)) and all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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CLAIMS APPENDIX

CLAIMS 1-15 and 17-26 ON APPEAL:

1. A method of manufacturing glass preforms for press molding by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, and then dropping the support member more rapidly than the rate of flow of the glass melt flow to separate a glass gob from the glass melt flow;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass gob from the glass melt

flow using the support member and transferring the glass gob to the glass preform forming member.

2. A method of manufacturing glass preforms for press molding by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, the front end being supported to form a constriction between a nozzle side and a support side of the glass melt flow, and then dropping the support member to separate the glass gob from the glass melt flow at the constriction;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass gob from the glass melt

flow using the support member and transferring the glass gob to the glass preform forming member.

3. A method of manufacturing glass preforms for press molding by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and molding the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, the front end being supported to form a constriction between the nozzle side and the support side of the glass melt flow, and then removing support of the support member to separate the glass gob from the glass melt flow at the constriction;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass glob from the glass melt

flow using the support member and transferring the glass gob to the glass preform forming member.

4. The manufacturing method according to any of claims 1 to 3, wherein the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member, or the time for transferring the glass gob from the support member to a moving glass preform forming member, is made shorter than a gob separation period, defined as the time from when the support member begins to approach the nozzle to when the glass gob has been completely separated.

5. A method of manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming-step of receiving a front end of the glass melt flow by a support member and dropping the support member more rapidly than the flow rate of the glass melt flow to separate the glass gob, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to mold a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass

gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period.

6. A method of manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming step of receiving a front end of the glass melt flow by a support member, supporting the front end to form a constriction between the nozzle side and the support side of the glass melt flow, and dropping the support member to separate the glass gob from the glass melt flow at the constriction, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to mold a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is moved to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period.

7. A method of manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle

at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming-step of receiving a front end of the glass melt flow by a support member, supporting the front end to form a constriction between the nozzle side and the support side of the glass melt flow, and removing support from the support member to separate the glass gob from the glass melt flow at the constriction, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to form a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass-preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period.

8. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein the surface receiving the glass gob of the support member is a flat surface and this flat surface is rotated 360° to transfer the glass gob to the glass forming member.

9. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein the surface of the support member receiving the glass gob is tilted to cause the glass gob to fall off, thereby transferring the glass gob to the glass preform forming member, and the direction of the

fall of the glass gob is consistent with the direction of movement of the glass preform forming member.

10. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein two consecutively produced glass gobs are separated by receiving the glass melt flow on two different surfaces of the support member.

11. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein, in the course of transferring the glass gob from the support member to the glass preform forming member, the glass gob is turned upside down.

12. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein gas is blown from the surface of the support member receiving the front end of the glass melt flow when receiving said front end.

13. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein the glass preform comprises optical glass.

14. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding by continuously separating optical glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, and then

dropping the support member more rapidly than the rate of flow of the glass melt flow to separate a glass gob from the glass melt flow;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is-transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass gob from the glass melt flow using the support member and transferring the glass gob to the glass preform forming member;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

15. A method of manufacturing glass gobs in which glass gobs are formed from a glass melt flowing out of a nozzle at a flow speed, characterized in that:

prior to dripping from the nozzle, bringing the glass melt flowing out into contact with a support member beneath a lower end of the glass melt flowing out of the nozzle, the glass melt being cooled when brought into contact with the support member that is cooled by circulation of a coolant through the support member, and

then moving the support member downward from beneath the lower end of the glass melt at a speed greater than the flow speed of the glass melt, causing a glass gob of prescribed weight to drip onto the support member from the nozzle,

wherein according to the moving step, prior to dripping of the glass gob onto the support member, the support member is moved downward in such a manner that contact is temporarily broken between the support member and the lower end of the glass melt.

16. (cancelled):

17. The manufacturing method according to claim 15, further characterized in that the glass gob that has dripped is rendered spherical on the support member or after being moved to the glass preform forming member from the support member.

18. The manufacturing method according to claim 15, further characterized in that the difference between the softening point and the glass transition temperature of the glass is less than or equal to 100°C.

19. The method of manufacturing glass gobs according claim 15, further characterized in that the glass gob is a preform for press molding.

20. A method of manufacturing optical elements, comprising:

(1) manufacturing glass gobs in which glass gobs are formed from an optical glass melt flowing out of a nozzle at a flow speed, characterized in that:

prior to dripping from the nozzle, bringing the glass melt flowing out into contact with a support member beneath a lower end of the glass melt flowing out of the nozzle, the glass melt

being cooled when brought into contact with the support member that is cooled by circulation of a coolant through the support member, and

then moving the support member downward from beneath the lower end of the glass melt at a speed greater than the flow speed of the glass melt, causing a glass gob of prescribed weight to drip onto the support member from the nozzle,

wherein according to the moving step, prior to dripping of the glass gob onto the support member, the support member is moved downward in such a manner that contact is temporarily broken between the support member and the lower end of the glass melt;

(2) heat softening the glass gob formed into a glass preform; and

(3) then, press molding the softened glass preform into an optical element.

21. The manufacturing method according to any of claims 1 to 3 and 5-7, wherein said forming step comprises float forming while said glass gob is formed while floating on a blown gas.

22. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, the front end

being supported to form a constriction between a nozzle side and a support side of the glass melt flow, and then dropping the support member to separate the glass gob from the glass melt flow at the constriction;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass gob from the glass melt flow using the support member and transferring the glass gob to the glass preform forming member;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

23. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and molding

the separated glass gobs with glass preform forming members that are intermittently or continuously moving, the method comprising:

moving a support member whereby said support member approaches a front end of the nozzle, so that a front end of the glass melt flow is received by the support member, the front end ~~is~~ being supported to form a constriction between the nozzle side and the support side of the glass melt flow, and then removing support of the support member to separate the glass gob from the glass melt flow at the constriction;

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member, which is operative to form a glass preform for press molding; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made shorter than a gob preparation period, defined as the time required for preparing one glass glob from the glass melt flow using the support member and transferring the glass gob to the glass preform forming member;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

24. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming-step of receiving a front end of the glass melt flow by a support member and dropping the support member more rapidly than the flow rate of the glass melt flow to separate the glass gob, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to mold a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

25. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming step of receiving a front end of the glass melt flow by a support member, supporting the front end to form a constriction between the nozzle side and the support side of the glass melt flow, and dropping the support member to separate the glass gob from the glass melt flow at the constriction, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to mold a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is moved to a stopped glass preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

26. A method of manufacturing optical elements, comprising:

(1) manufacturing glass preforms for press molding optical elements by continuously separating glass gobs from a glass melt flow continuously flowing out of a nozzle at a rate of flow and forming the separated glass gobs with glass preform forming members that are intermittently or continuously moving, comprising:

a gob forming-step of receiving a front end of the glass melt flow by a support member, supporting the front end to form a constriction between the nozzle side and the support side of the glass melt flow, and removing support from the support member to separate the glass gob from the glass melt flow at the constriction, said gob forming step being preformed once in a fixed cycle period,

transferring the separated glass gob from the support member to a stopped or moving glass preform forming member to form a glass preform; and

forming the glass preform by moving at least one glass preform forming member while cooling the glass to form a solid glass preform, wherein

in the case where the glass gob is transferred to a stopped glass-preform forming member, the period during which the glass preform forming member is stopped for transfer of the glass gob from the support member to the glass preform forming member is made less than or equal to 70 percent of said fixed cycle period;

(2) heat softening the glass preform; and

(3) then, press molding the softened glass preform into an optical element.

EVIDENCE APPENDIX:

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), Appellant state that there is no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal.

RELATED PROCEEDINGS APPENDIX

Appellants respectfully submit that there are no decisions rendered by a court or the Board in any proceeding identified in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).